

narrow dentate transverse black bands—the first before the middle curves upward in front of the shoulders to the base, thus including a large spot of the ground-colour, at the sides it is connected with a short longitudinal stripe which also joins the second band immediately below the middle; the third band is placed near the apex, but terminates abruptly at the sides, near its ends it is connected with the intermediate band by a longitudinal stripe which runs parallel with the suture, the latter is likewise narrowly black.

Hab. Malvern, Natal (*G. Marshall*).

I cannot identify this insect with any other species of the genus or their varieties previously described, although it is of course closely allied to several, notably to *A. 20-pustulata* Thunb.; but the pattern of the elytra is different as well as the shape of the fulvous patches which are surrounded by the black bands, and even if the latter should in some specimens be connected in the places where the short tooth-like projections seem to give indications, the pale spots would be of different shape and position than in most other species; as it is, the three specimens exactly agree except in the colour of the thorax. The most characteristic distinction of the species will be found in the laterally interrupted third band of the elytra and its connection with the preceding band by a longitudinal short stripe near the suture. *P. pardalina* Fab. is a somewhat closely allied species which has the flavous elytral margin in common with the present insect, but the position, number, and shape of the flavous markings are quite different.

EXPLANATION OF PLATE XXII.

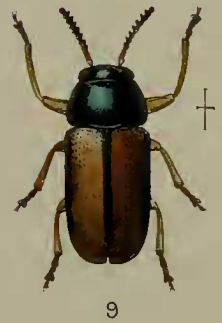
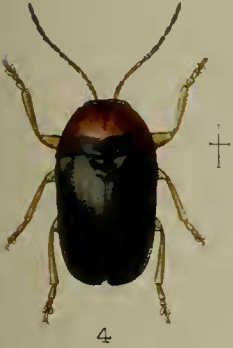
- Fig. 1. *Pacilomorpha hirsuta*, p. 216.
2. *Lema cyaneoplagiata*, p. 214.
3. *Cryptocephalus epipleuralis*, p. 223.
4. *Acolastus nigroplagiatus*, p. 224.
5. *Melitonoma marshalli*, p. 216.
6. *Anisognatha quadriplagiata*, p. 220.
7. *Miopristis pusilla*, p. 220.
8. *Ætheomorpha cærulea*, p. 221.
9. *Gynandrophthalma nitidicollis*, p. 219.
10. *Cheiridisia inornata*, p. 226.
11. *Atechna interruptofasciata*, p. 241.
12. *Pseudocolaspis costata*, p. 230.

4. On a new Flagellate Protozoon of the Genus *Lophomonas*.

By E. H. J. SCHUSTER, F.Z.S.

[Received January 31, 1898.]

In the year 1860 Stein established the genus *Lophomonas* for the reception of a Flagellate Protozoon observed by him inhabiting the intestinal canal of *Blatta orientalis*, to which he gave the name *Lophomonas blattarum*. The same species was observed shortly afterwards by O. Butschli under similar conditions. The



W. Purkass del. et lith

West, Newman imp.

latter also described another species with the same habitat, under the name *L. striata*.

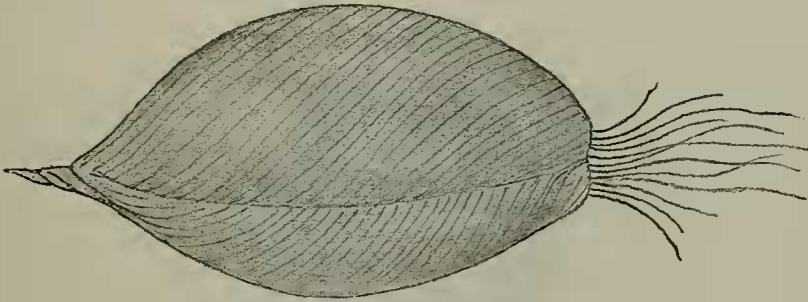
Mr. Saville Kent, who established the family Lophomonadidæ to receive this genus, in the 'Manual of the Infusoria,' gives the following diagnosis, viz. :—

“The genus LOPHOMONAS Stein.

“Animalcules free-swimming; somewhat plastic and variable in form, spheroidal, ovate or fusiform, bearing at the anterior extremity a crescent-shaped fascicle of long slender flagellæ; endoplast sometimes distinct; contractile vesicle not yet recognized; inhabiting the intestinal canal of various Insecta.”

On examining the contents of the intestine of *Blatta americana* I observed a form which, although it possessed all the generic characteristics above cited, differs very markedly from either of the two species hitherto described, and which I propose to designate by the name *Lophomonas sulcata* (fig. 1).

Fig. 1.



Lophomonas sulcata, ×800.

LOPHOMONAS SULCATA, sp. n.

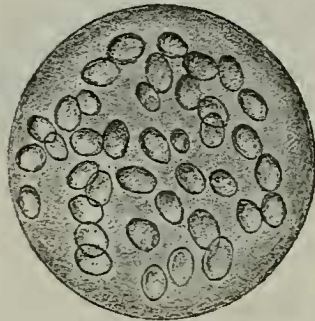
This Protozoon is of comparatively large size, being about 60 or 70 μ or $\frac{1}{300}$ inch in length; whereas *L. blattarum* is $\frac{1}{825}$ in length, and *L. striata* $\frac{1}{800}$. The body is subfusiform in shape, with the anterior extremity truncate and bearing the fascicle of the flagella, and the posterior extremity bearing a tail-like projection, exceedingly variable in length (in some cases this projection is almost entirely absent, in others it was fully half the length of the body). The body is divided by a deep sulcus into two lobes, and the whole surface is covered by well-marked oblique striæ; the internal protoplasm is hyaline: no endoplast (after treatment with osmic acid and micro-carmine) or contractile vesicle was observed.

Although I have watched several living specimens, I have never seen a solid particle of food-matter ingested, and therefore consider it probable that the animal obtains nourishment by the absorption of dissolved proteids, &c., over the entire surface of the body. These Protozoa were present in only one part of the alimentary canal, namely, in the upper part of the colon.

In some cases *Nyctotherus ovalis* Leidy, and almost always *Lophomonas blattarum* Stein, accompanied it, but neither of these species was at any time taken in any other part of the alimentary canal. This perhaps is due to the salivary excretion exercising a poisonous influence on these animals. This view was suggested by one of the observations of Professor Grassi and Dr. Sandias on the Termites, an account of which appeared in the 'Atti dell' Accademia Gioenia di Scienze Naturali in Catania,' 1893-4, and was translated by Mr. W. F. H. Blandford in 1897, in the 'Quarterly Journal of Microscopic Science.' Among the Termites under particular circumstances certain individuals are fed on the secretion of the salivary glands of others, and under such conditions these individuals, although normally rich in parasitic forms, have been observed to contain none whatever.

Another fact worthy of note is that although the immature forms of *Blatta americana* contain a large number of infusorial parasites, in the adults few, if any, are present. I examined the contents of the rectum and the dejecta of *Blatta americana*, and found two forms of cysts present; one of these I think was the

Fig. 2.

Possible cyst of *Lophomonas sulcata*?, $\times 800$.

cyst of *Gregarina blattarum*. The other (fig. 2) was small and spherical, and contained numerous oval spores. The latter may be the cyst of *Lophomonas sulcata*.